



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stephen James Russell et al.

Art Unit : 1632

Serial No. : 09/667,947

Examiner : Shin-Lin Chen

Filed : September 22, 2000

Title : THERAPEUTIC METHODS AND COMPOSITIONS USING VIRUSES OF THE
RECOMBINANT PARAMYXOVIRIDAE FAMILY

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MAY 28 2003

TECH CENTER 1600/2900

MAIL STOP SEQUENCE

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

TRANSMITTAL LETTER

The following correspondence relating to this application is enclosed:

1. Response to Notice to Comply (2 pages);
2. Copy of Notice to Comply (10 pages);
3. Paper Copy of Substitute Sequence Listing (10 pages);
4. Verified Statement Under 37 CFR § 1.821(f);
5. Computer Readable Diskette; and
6. Post card.

Please apply any charges not covered, or any credits, to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 5/20/03

Monica McCormick Graham, Ph.D.

Reg. No. 42,600

Fish & Richardson P.C., P.A.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696

60142250.doc

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

May 20, 2003

Date of Deposit

Signature

Judith A. Wasilkus

Typed or Printed Name of Person Signing Certificate



AF/1632

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TRANSMITTAL LETTER

The following correspondence relating to this application is enclosed:

1. Amendment and Response to Office Action mailed February 20, 2003 (8 pages);
2. Copy of Peng et al., Nature Medicine article (5 pages);
3. Copy of Peng et al., Cancer Research article (7 pages); and
4. Post card.

Please apply any charges not covered, or any credits, to Deposit Account No. 06-1050.

Respectfully submitted,

Date: _____

5/20/03

Monica McCormick Graham, Ph.D.
Reg. No. 42,600

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Minneapolis, MN 55402
Telephone: (612) 335-5070
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CERTIFICATE OF MAILING BY FIRST CLASS MAIL

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MAIL STOP SEQUENCE

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO COMPLY WITH REQUIREMENTS
FOR PATENT APPLICATIONS CONTAINING
NUCLEOTIDE AND/OR AMINO ACID SEQUENCES

In response to the communication dated February 20, 2003 (copy enclosed), Applicants submit herewith a Sequence Listing in computer readable form as required by 37 CFR §1.824. In addition, Applicants submit a substitute Sequence Listing as required under 37 CFR §1.823(a) and a statement under 37 CFR §1.821(f). In the substitute sequence listing, the <213> section recites "artificial sequence" in place of "fragment." The substitute specification also provides the information for the <220> and <223> sections. No new matter has been introduced.

Applicants respectfully request entry of the substitute paper copy and computer readable copy of the Sequence Listing filed herewith in the instant application.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

May 20, 2003

Date of Deposit

Signature

Judith A. Wasilkus

Typed or Printed Name of Person Signing Certificate

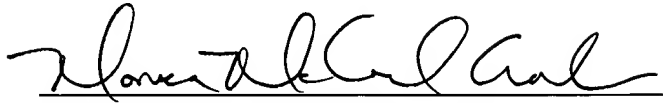
Applicant : Stephen James Russell et al.
Serial No. : 09/667,947
Filed : September 22, 2000
Page : 2 of 2

Attorney's Docket No.: 07039-298001

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 5/20/03



Monica McCormick Graham, Ph.D.
Reg. No. 42,600

Fish & Richardson P.C., P.A.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696

60142192.doc

NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES

Applicant must file the items indicated below within the time period set the Office action to which the Notice is attached to avoid abandonment under 35 U.S.C. § 133 (extensions of time may be obtained under the provisions of 37 CFR 1.136(a)).

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):



- ☒ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☒ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☐ 7. Other: _____

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Applicant Must Provide:

- ☒ An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".
- ☒ An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☒ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212

PatentIn Software Program Support

Tchnical Assistance.....703-287-0200

To Purchase PatentIn Software.....703-306-2600

PLEASE RETURN A COPY OF THIS NOTICE WITH YOUR REPLY

RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/667,947

Source: 600

Date Processed by STIC: 01/07/2003

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JAN 23 2003

TECH CENTER 1600/2900

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-306-4212

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-306-4216

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE **CHECKER VERSION 3.1 PROGRAM**, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<<http://www.uspto.gov/efb/efs/downloads/documents.htm>>), EFS Submission User Manual - ePAVB)
2. U.S. Postal Service: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202
3. Hand Carry directly to:
U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7th Floor, Examiner Name, Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202
Or
U.S. Patent and Trademark Office, Box Sequence, Customer Window, Lobby, Room 1B03, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202
4. Federal Express, United Parcel Service, or other delivery service to: U.S. Patent and Trademark Office, Box Sequence, Room 1B03-Mailroom, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202

Revised 01/29/2002

Raw Sequence Listing Error Summary

ERROR DETECTED**SUGGESTED CORRECTION**SERIAL NUMBER: 09/667,947

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1 Wrapped Nucleics
 Wrapped Aminos The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
- 2 Invalid Line Length The rules require that a line not exceed 72 characters in length. This includes white spaces.
- 3 Misaligned Amino
 Numbering The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
- 4 Non-ASCII The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
- 5 Variable Length Sequence(s) contain n's or Xaa's representing more than one residue. Per Sequence Rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
- 6 PatentIn 2.0
 "bug" A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) . Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
- 7 Skipped Sequences
 (OLD RULES) Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence:
 (2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
 (i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)
 (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
 This sequence is intentionally skipped

 Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
- 8 Skipped Sequences
 (NEW RULES) Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence.
 <210> sequence id number
 <400> sequence id number
 000
- 9 Use of n's or Xaa's
 (NEW RULES) Use of n's and/or Xaa's have been detected in the Sequence Listing.
 Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.
 In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 10 Invalid <213>
 Response Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence
- 11 Use of <220> Sequence(s) missing the <220> "Feature" and associated numeric identifiers and responses.
 Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.
 (See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
- 12 PatentIn 2.0
 "bug" Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.
- 13 Misuse of n n can only be used to represent a single nucleotide in a nucleic acid sequence. N is not used to represent any value not specifically a nucleotide.



1600

 Doc
 comply
 in Needle:

 RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/667,947

 DATE: 01/07/2003
 TIME: 16:31:43

 Input Set : A:\07039-298001.txt
 Output Set: N:\CRF4\01072003\I667947.raw

4 <110> APPLICANT: Russell, Stephen James
 5 Cattaneo, Roberto
 6 Peng, Kah-Whye
 7 Schneider, Urs
 8 Murphy, Anthea L.
 10 <120> TITLE OF INVENTION: Therapeutic methods and compositions
 11 using viruses of the recombinant paramyxoviridae family
 14 <130> FILE REFERENCE: 07039-298001
 16 <140> CURRENT APPLICATION NUMBER: US 09/667,947
 C--> 17 <141> **CURRENT FILING DATE: 2002-12-18**
 19 <150> PRIOR APPLICATION NUMBER: US 60/155,873
 20 <151> PRIOR FILING DATE: 1999-09-24
 22 <160> NUMBER OF SEQ ID NOS: 49
 24 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 26 <210> SEQ ID NO: 1
 27 <211> LENGTH: 4
 28 <212> TYPE: PRT
 29 <213> ORGANISM: Fragment
 31 <400> SEQUENCE: 1
 32 Ile Glu Gly Arg
 33 1
 35 <210> SEQ ID NO: 2
 36 <211> LENGTH: 4
 37 <212> TYPE: PRT
 38 <213> ORGANISM: Fragment
 40 <220> FEATURE:
 41 <221> NAME/KEY: VARIANT
 42 <222> LOCATION: 2
 43 <223> OTHER INFORMATION: Xaa = Any 20 amino acids
 45 <400> SEQUENCE: 2

- invalid responses see error summary sheet
 item 10

The type of errors shown exist throughout
 the Sequence Listing. Please check subsequent
 sequences for similar errors

W--> 46 Arg Xaa Lys Arg
 47 1
 49 <210> SEQ ID NO: 3
 50 <211> LENGTH: 6
 51 <212> TYPE: PRT
 52 <213> ORGANISM: Fragment
 54 <400> SEQUENCE: 3
 55 Pro Leu Gly Leu Trp Ala
 56 1 5
 58 <210> SEQ ID NO: 4
 59 <211> LENGTH: 6
 60 <212> TYPE: PRT
 61 <213> ORGANISM: Fragment

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

63 <400> SEQUENCE: 4
64 Tyr Glu Val Asp Gly Trp
65 1 5
67 <210> SEQ ID NO: 5
68 <211> LENGTH: 7
69 <212> TYPE: PRT
70 <213> ORGANISM: Fragment
72 <400> SEQUENCE: 5
73 Val Asp Val Ala Asp Gly Trp
74 1 5
76 <210> SEQ ID NO: 6
77 <211> LENGTH: 7
78 <212> TYPE: PRT
79 <213> ORGANISM: Fragment
81 <400> SEQUENCE: 6
82 Val Asp Gln Met Asp Gly Trp
83 1 5
85 <210> SEQ ID NO: 7
86 <211> LENGTH: 6
87 <212> TYPE: PRT
88 <213> ORGANISM: Fragment
90 <400> SEQUENCE: 7
91 Leu Glu Val Asp Gly Trp
92 1 5
94 <210> SEQ ID NO: 8
95 <211> LENGTH: 6
96 <212> TYPE: PRT
97 <213> ORGANISM: Fragment
99 <400> SEQUENCE: 8
100 Val Gln Val Asp Gly Trp
101 1 5
103 <210> SEQ ID NO: 9
104 <211> LENGTH: 7
105 <212> TYPE: PRT
106 <213> ORGANISM: Fragment
108 <400> SEQUENCE: 9
109 Val Asp Gln Val Asp Gly Trp
110 1 5
112 <210> SEQ ID NO: 10
113 <211> LENGTH: 4
114 <212> TYPE: PRT
115 <213> ORGANISM: Fragment
117 <400> SEQUENCE: 10
118 Arg Gly Leu Thr
119 1
121 <210> SEQ ID NO: 11
122 <211> LENGTH: 17
123 <212> TYPE: PRT
124 <213> ORGANISM: Fragment

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

126 <400> SEQUENCE: 11
 127 Asn Phe Asp Leu Leu Lys Leu Ala Gly Asp Val Glu Ser Asn Pro Gly
 128 1 5 10 15
 129 Pro
 132 <210> SEQ ID NO: 12
 133 <211> LENGTH: 34
 134 <212> TYPE: PRT
 135 <213> ORGANISM: Fragment ✓
 137 <400> SEQUENCE: 12
 138 Met Ser Pro Gln Arg Asp Arg Ile Asn Ala Phe Tyr Lys Asp Asn Pro
 139 1 5 10 15
 140 His Pro Lys Gly Ser Arg Ile Val Ile Asn Arg Glu His Leu Met Ile
 141 20 25 30
 142 Asp Arg
 145 <210> SEQ ID NO: 13
 146 <211> LENGTH: 33
 147 <212> TYPE: PRT
 148 <213> ORGANISM: Fragment ✓
 150 <400> SEQUENCE: 13
 151 Arg Gly Arg Cys Asn Lys Lys Gly Glu Gln Val Gly Met Ser Arg Pro
 152 1 5 10 15
 153 Gly Leu Lys Pro Asp Leu Thr Gly Thr Ser Lys Ser Tyr Val Arg Ser
 154 20 25 30
 155 Leu
 158 <210> SEQ ID NO: 14
 159 <211> LENGTH: 5
 160 <212> TYPE: PRT
 161 <213> ORGANISM: Fragment ✓
 163 <400> SEQUENCE: 14
 164 Arg Arg His Lys Arg
 165 1 5
 167 <210> SEQ ID NO: 15
 168 <211> LENGTH: 4
 169 <212> TYPE: PRT
 170 <213> ORGANISM: Fragment ✓
 172 <400> SEQUENCE: 15
 173 Arg His Lys Arg
 174 1
 176 <210> SEQ ID NO: 16
 177 <211> LENGTH: 47
 178 <212> TYPE: DNA
 179 <213> ORGANISM: Artificial Sequence
 181 <220> FEATURE:
 182 <223> OTHER INFORMATION: Primer
 184 <400> SEQUENCE: 16
 185 ttttcctttt gcggcgctt tcatcaacgc ttctgcaggg acccctc
 187 <210> SEQ ID NO: 17
 188 <211> LENGTH: 56
 189 <212> TYPE: DNA

47

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

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Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

```

190 <213> ORGANISM: Artificial Sequence
192 <220> FEATURE:
193 <223> OTHER INFORMATION: Primer
195 <400> SEQUENCE: 17
196 gtccatgCGG cccagccggc ccgattaaag agagaggcag aggacctgca ggtggg          56
198 <210> SEQ ID NO: 18
199 <211> LENGTH: 18
200 <212> TYPE: PRT
201 <213> ORGANISM: Fragment /
203 <400> SEQUENCE: 18
204 Val His Ala Ala Gln Pro Ala Arg Leu Lys Arg Glu Ala Glu Asp Leu
205 1          5          10          15
206 Gln Val
209 <210> SEQ ID NO: 19
210 <211> LENGTH: 50
211 <212> TYPE: DNA
212 <213> ORGANISM: Artificial Sequence
214 <220> FEATURE:
215 <223> OTHER INFORMATION: Primer
217 <400> SEQUENCE: 19
218 ttttcctttt gcggccgctt tcatcatcaa cgcttctgca gggaccctc          50
220 <210> SEQ ID NO: 20
221 <211> LENGTH: 59
222 <212> TYPE: DNA
223 <213> ORGANISM: Artificial Sequence
225 <220> FEATURE:
226 <223> OTHER INFORMATION: Primer
228 <400> SEQUENCE: 20
229 gtccatgCGG cccagccggc cgggtggaggc gggtcagagg cagaggacct gcagggtgg          59
231 <210> SEQ ID NO: 21
232 <211> LENGTH: 19
233 <212> TYPE: PRT
234 <213> ORGANISM: Fragment /
236 <400> SEQUENCE: 21
237 Val His Ala Ala Gln Pro Ala Gly Gly Gly Gly Ser Glu Ala Glu Asp
238 1          5          10          15
239 Leu Gln Val
242 <210> SEQ ID NO: 22
243 <211> LENGTH: 16
244 <212> TYPE: PRT
245 <213> ORGANISM: Fragment /
247 <400> SEQUENCE: 22
248 Arg Gly Arg Cys Asn Lys Lys Gly Glu Gln Gly Met Ser Arg Pro Gly
249 1          5          10          15
251 <210> SEQ ID NO: 23
252 <211> LENGTH: 9
253 <212> TYPE: PRT
254 <213> ORGANISM: Fragment /
256 <400> SEQUENCE: 23

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

```

257 Arg Gly Arg Cys Asn Lys Lys Gly Glu
258 1 5
260 <210> SEQ ID NO: 24
261 <211> LENGTH: 26
262 <212> TYPE: DNA
263 <213> ORGANISM: Artificial Sequence
265 <220> FEATURE:
266 <223> OTHER INFORMATION: Primer
268 <400> SEQUENCE: 24
269 aaaactgcag actcaaaggt caatgc 26
271 <210> SEQ ID NO: 25
272 <211> LENGTH: 30
273 <212> TYPE: DNA
274 <213> ORGANISM: Artificial Sequence
276 <220> FEATURE:
277 <223> OTHER INFORMATION: Primer
279 <400> SEQUENCE: 25
280 cccttaatta atatacagat ctcaacggat 30
282 <210> SEQ ID NO: 26
283 <211> LENGTH: 31
284 <212> TYPE: DNA
285 <213> ORGANISM: Artificial Sequence
287 <220> FEATURE:
288 <223> OTHER INFORMATION: Primer
290 <400> SEQUENCE: 26
291 ccatcgataa tggccttcta caaagataac c 31
293 <210> SEQ ID NO: 27
294 <211> LENGTH: 33
295 <212> TYPE: DNA
296 <213> ORGANISM: Artificial Sequence
298 <220> FEATURE:
299 <223> OTHER INFORMATION: Primer
301 <400> SEQUENCE: 27
302 ccatcgataa tgagccatcc caagggaagt agg 33
304 <210> SEQ ID NO: 28
305 <211> LENGTH: 33
306 <212> TYPE: DNA
307 <213> ORGANISM: Artificial Sequence
309 <220> FEATURE:
310 <223> OTHER INFORMATION: Primer
312 <400> SEQUENCE: 28
313 ccatcgataa tgaacagaga acatcttatg att 33
315 <210> SEQ ID NO: 29
316 <211> LENGTH: 29
317 <212> TYPE: DNA
318 <213> ORGANISM: Artificial Sequence
320 <220> FEATURE:
321 <223> OTHER INFORMATION: Primer
323 <400> SEQUENCE: 29

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003
TIME: 16:31:44

Input Set : A:\07039-298001.txt
Output Set: N:\CRF4\01072003\I667947.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:2; Xaa Pos. 2

Seq#:35; Xaa Pos. 5,6,7

Seq#:36; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,15,16,17,20

VERIFICATION SUMMARYPATENT APPLICATION: **US/09/667,947**

DATE: 01/07/2003

TIME: 16:31:44

Input Set : **A:\07039-298001.txt**Output Set: **N:\CRF4\01072003\I667947.raw**

L:17 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:396 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:35
L:400 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:35
L:401 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0
L:418 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:422 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:426 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:430 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:434 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:438 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:442 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:446 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:450 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:454 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:458 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:462 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:466 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:467 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0